



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/039,357	11/07/2001	Chang-Soo Park	TJK/ 203/LW	9767
26689	7590	12/08/2003	EXAMINER	
WILDMAN, HARROLD, ALLEN & DIXON 225 WEST WACKER DRIVE CHICAGO, IL 60606			ZERVIGON, RUDY	
			ART UNIT	PAPER NUMBER

1763

DATE MAILED: 12/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/039,357

Applicant(s)

PARK ET AL.

Examiner

Rudy Zervigon

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 17-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6/18/2003 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I, Claims 1-16 in Paper No. September 15, 2003 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "power source" must be shown or the feature canceled from the claim. No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1-3, 7, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Fukui et al (USPat. 5,002,928). Fukui teaches an apparatus (Figure 1; column 4, lines 19-48) for forming a thin film (column 2, lines 14-36), comprising:

- i. a reaction chamber (14; column 5, lines 1-2) having a top portion, a sidewall portion and a bottom portion; a gas injector (1, 12; column 4, lines 60-69) penetrating the top portion and

Art Unit: 1763

letting a source element pass therethrough; a distributor (7, Figure 1; column 4, lines 19-48) connected to the gas injector (1, 12; column 4, lines 60-69), wherein a plurality of injection holes (see material conduits 9, 11, and 12; Figure 1) are formed in the distributor (7, Figure 1; column 4, lines 19-48) and the source element is injected through the plurality of injection holes (see material conduits 9, 11, and 12; Figure 1); and a substrate (17, Figure 1) heating member (16; Figure 1; column 4, lines 60-68) positioned in a reaction space (container 14) defined by the top, bottom and sidewall portions of the reaction chamber (14; column 5, lines 1-2), and arranged below the distributor (7, Figure 1; column 4, lines 19-48), as claimed by claim 1

- ii. a ram (15, Figure 1; column 4, lines 60-69) that is mounted through the bottom portion of the reaction chamber (14; column 5, lines 1-2) to support the substrate (17, Figure 1) heating member (16; Figure 1; column 4, lines 60-68), as claimed by claim 2
- iii. the distributor (7, Figure 1; column 4, lines 19-48) includes a first portion (cylindrical portion of 7) having a cylindrical portion and a second portion (truncated cone portion of item 7) shaped like a truncated cone, as claimed by claim 3
- iv. the substrate (17, Figure 1) heating member (16; Figure 1; column 4, lines 60-68) is positioned at the center (Figure 1) of the reaction space (container 14) and the gas injector (1, 12; column 4, lines 60-69) is disposed at the center of the top portion of the reaction chamber (14; column 5, lines 1-2), as claimed by claim 7
- v. the top portion of the reaction chamber (14; column 5, lines 1-2; Figure 1) has a dome shape, as claimed by claim 15

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukui et al (USPat. 5,002,928) in view of Voll et al (USPat. 4,439,401). Fukui is discussed above. Fukui does not teach injection holes that are arranged at the side of the second portion of the distributor as discussed above.

Voll teaches numerous gas distributors (Figures 1-10) including a distributor (Figure 4) which has a first portion (cylindrical portion of item 4) having a cylindrical portion and a second portion (truncated cone portion of item 4) shaped like a truncated cone with injection holes (3) that are arranged at the side of the second portion of the distributor.

Voll's gas distributor (Figure 4) further includes:

- i. 5. wherein each injection hole (3) includes a large diameter part (open cone portion of 2) and a small diameter part (drilled portion 3 into 4) providing a velocity of source element which increases
- ii. 6. wherein the large diameter part has a large diameter rather than the small diameter part

It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace Fukui's gas distributor with Voll's gas distributor.

Motivation for replacing Fukui's gas distributor with Voll's gas distributor is to provide an alternate means for distributing process gasses.

Art Unit: 1763

7. Claims 8-14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukui et al (USPat. 5,002,928) in view of McMillin et al (USPat. 6,013,155). Fukui is discussed above. Fukui further teaches the injection of oxygen (air carrier gas; column 5, lines 19-25). However, Fukui does not teach plural distributors and a specific orientation of plural distributors. Further, Fukui does not teach that the size of his injection holes vary depending on his reaction space of his reaction chamber. Further, Fukui does not teach the substrate heating member includes both a heating element and an electric power source supply as one body. McMillin teaches a gas injection system (Title; Figure 10a) including plural distributors (180; Figure 10a) at specified orientations. Further, McMillin teaches the substrate heating member (130) which includes an electric power source supply (column 6, lines 10-15).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to:

- i. reproduce Fukui's gas distributor, at specified orientations, as taught by McMillin - Motivation to reproduce Fukui's gas distributor, at specified orientations, as taught by McMillin is for providing "uniform high flow rate delivery of reactant gases" as taught by McMillin (column 4, lines 2-10). Further, it is well established that the duplication of parts is obvious (In re Harza , 274 F.2d 669, 124 USPQ 378 (CCPA 1960) MPEP 2144.04).
- ii. vary the sizes for Fukui's injection holes - Motivation to vary the sizes for Fukui's injection holes is to provide a desired flow characteristic for the injected gases. Further, it is well established that changes in apparatus dimensions are within the level of ordinary skill in the art.(Gardner v. TEC Systems, Inc. , 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert.

Art Unit: 1763

denied , 469 U.S. 830, 225 USPQ 232 (1984); In re Rose , 220 F.2d 459, 105 USPQ 237 (CCPA 1955); In re Rinehart, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); See MPEP 2144.04)

- iii. add a power source to Fukui's heater as taught by McMillin providing both a heating element and an electric power source supply as one body - Motivation to add a power source to Fukui's heater as taught by McMillin providing both a heating element and an electric power source supply as one body is to control the heating of the substrate.

Response to Arguments

8. Applicant's arguments filed September 15, 2003 have been fully considered but they are not persuasive.

9. Applicant states:

“

The Office Action equates material conduits 9, 11 and 12 of Fukui to the injection holes of the claim; yet, claim 1 specifies that a source element passes through the gas injector and is injected through the plurality of injection holes. Fukui specifies, however, that a feedstock solution is supplied into conduit 9. A separate solution is provided through conduit 11 (Column 7, lines 20-25) and a carrier gas is provided through conduit 12. Therefore, three distinct elements or compositions pass through material conduits 9, 11 and 12.

“

That Fukui's material flows in Fukui's injection holes are of materials other than a “source element” is a statement of intended use of the claimed apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention

Art Unit: 1763

generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).

Applicant further states that “Needle valve holder 7 is not a distributor” because “no substance emanates from needle valve holder 7”. To the contrary, Fukui’s material flows 9, 11, and 12 are well described (column 7, lines 14-38).

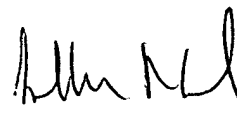
Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 1763

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (703) 305-1351. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official after final fax phone number for the 1763 art unit is (703) 872-9311. The official before final fax phone number for the 1763 art unit is (703) 872-9310. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (703) 308-0661. If the examiner can not be reached please contact the examiner's supervisor, Gregory L. Mills, at (703) 308-1633.



JEFFRIE R. LUND
PRIMARY EXAMINER